

We Claim:

1. A method for operating a reformer installation for providing hydrogen-containing gas, which comprises the following steps:

feeding an incoming stream to a reformer unit;

discharging an outgoing stream from the reformer unit;

branching-off at least one outflowing partial stream from the outgoing stream, the outflowing partial stream having a composition corresponding to a composition of the outgoing stream upon emerging from the reformer unit; and

feeding-back the at least one outflowing partial stream, as an inflowing partial stream, to the incoming stream, to at least partially form a circulating stream.

2. The method for operating a reformer installation according to claim 1, which further comprises heating the circulating stream.

3. The method for operating a reformer installation according to claim 1, which further comprises conveying the circulating stream through a pump.

4. The method for operating a reformer installation according to claim 1, which further comprises feeding the circulating stream through another reformer unit heating the circulating stream.

5. The method for operating a reformer installation according to claim 2, which further comprises carrying out the step of heating the circulating stream by partial oxidation of hydrocarbons.

6. The method for operating a reformer installation according to claim 2, which further comprises carrying out the step of heating the circulating stream by electric heating.

7. The method for operating a reformer installation according to claim 1, which further comprises at least partially feeding the circulating stream through a fuel cell.

8. The method for operating a reformer installation according to claim 1, which further comprises feeding an input stream, being much smaller than the circulating stream, to the incoming stream.

9. The method for operating a reformer installation according to claim 8, wherein the circulating stream is at least ten times as large as the input stream.

10. The method for operating a reformer installation according to claim 1, which further comprises setting the reformer installation in operation by a remote control.

11. The method for operating a reformer installation according to claim 1, which further comprises setting the reformer installation in operation by a signal from a sensor.

12. The method for operating a reformer installation according to claim 4, which further comprises reaching an ignition temperature of one of the reformer units in less than 20 s.

13. The method for operating a reformer installation according to claim 4, which further comprises reaching an ignition temperature of one of the reformer units in approximately 10 s.

14. The method for operating a reformer installation according to claim 4, which further comprises reaching an ignition temperature of one of the reformer units in approximately 5 s.

15. The method for operating a reformer installation according to claim 1, which further comprises determining a characteristic variable with a sensor for regulating a level of at least one of: the incoming stream, the outgoing stream, the outflowing partial stream and the inflowing partial stream.

16. The method for operating a reformer installation according to claim 15, wherein the characteristic variable is proportional to a concentration of a substance in the circulating stream.

17. The method for operating a reformer installation according to claim 16, wherein the concentration of the substance is a concentration of hydrogen.

18. The method for operating a reformer installation according to claim 15, wherein the characteristic variable is proportional to a physical variable of the circulating stream.

19. The method for operating a reformer installation according to claim 18, wherein the physical variable is temperature.

20. The method for operating a reformer installation according to claim 19, which further comprises heating the circulating stream if the temperature falls below a predetermined temperature.

21. The method for operating a reformer installation according to claim 20, wherein the predetermined temperature is 100°C.

22. The method for operating a reformer installation according to claim 1, which further comprises operating the reformer installation during a starting phase of energy generation using a fuel cell.

23. A reformer installation for providing hydrogen-containing gas, comprising:

at least one reformer unit;

a feed line leading to said at least one reformer unit;

a discharge line leading from said at least one reformer unit and carrying an outgoing stream emerging from said at least one reformer unit; and

a line connecting said discharge line to said feed line and carrying an outflowing partial stream of said outgoing stream to said feed line, for at least partially forming a circulating stream, said outflowing partial stream having a composition corresponding to a composition of said outgoing stream upon emerging from said at least one reformer unit.

24. The reformer installation according to claim 23, which further comprises a heating device disposed in said line.

25. The reformer installation according to claim 24, wherein said heating device is another reformer unit.

26. The reformer installation according to claim 24, wherein said heating device is an electric heating device.

27. The reformer installation according to claim 23, which further comprises a pump disposed in said line.

28. The reformer installation according to claim 23, which further comprises a remote control for remote-controlled start up of the reformer installation.

29. The reformer installation according to claim 23, which further comprises a sensor for regulating said circulating stream.

30. The reformer installation according to claim 29, wherein said sensor is a temperature sensor.

31. The reformer installation according to claim 29, wherein said sensor is a substance-concentration sensor.

32. The reformer installation according to claim 29, wherein said sensor is a hydrogen-concentration sensor.

33. The reformer installation according to claim 23, which further comprises a sensor for starting up the reformer installation by an operator of a vehicle operated by fuel cells before the operator enters the vehicle.

34. The reformer installation according to claim 23, wherein said circulating stream flows in a volume of space similar to a product of a starting time required by the reformer installation and a temporal mean of a hydrogen-enriched volumetric flow of gas.

35. The reformer installation according to claim 23, which further comprises a respective directional control valve disposed in at least one of said feed line, said discharge line and said line.

36. A reformer installation for providing hydrogen-containing gas during a starting phase of energy generation using a fuel cell, comprising:

at least one reformer unit;

a feed line leading to said at least one reformer unit;

a discharge line leading from said at least one reformer unit and carrying an outgoing stream emerging from said at least one reformer unit;

a line connecting said discharge line to said feed line and carrying an outflowing partial stream of said outgoing stream to said feed line, for at least partially forming a circulating stream, said outflowing partial stream having a composition corresponding to a composition of said outgoing stream upon emerging from said at least one reformer unit; and

a fuel cell disposed in said line.